COLORED STONES

ASSIGNMENT 1

FACTORS AFFECTING THE VALUE OF COLORED STONES

IDENTIFICATION, PRODUCTION, MARKETING, BUYING

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I. INTRODUCTION.

This assignment opens the door to a field that holds as much fascination as any other branch of science. Awareness that an individual is a gemologist seems to draw forth more questions than those posed to almost any other professional. To achieve mastery of the subject requires diligence and perseverance; but the reward, in terms of useful knowledge and skill, is well worth the effort.

The record sheet included with this assignment contains a list of the assignments comprised by GIA's Colored Stones Course. The first lessons explain the optical and physical properties that are important in identification and evaluation. The later assignments deal with individual gem materials: how and where they occur; how they are fashioned and evaluated; their history and mythology. How properties are used to separate gems from each other will also be discussed. This information will be reinforced in the Gem Identification Course, which elaborates on identification techniques and requires the practical application of your knowledge.

II. WHAT ARE GEMS?

Gems may be described as those specimens of minerals or organic materials used for personal adornment that possess beauty, rarity, and durability. Organic materials used as gems include pearl, coral, amber, and jet. Gems are divided into two classifications: diamonds and colored stones. In its broadest sense, the term "colored stones" is used in the jewelry trade to refer to all gem minerals and organic gem materials, but not diamonds. In a narrower sense, pearls are also eliminated from this classification and treated separately; however, they will be studied in this course. Diamond is considered separately for several reasons: (1) In its finer qualities it is usually nearly colorless, whereas the finer qualities in the major varieties of the other gem minerals are colored; (2) its physical and optical properties are sufficiently different from other gems to make its beauty and use totally distinctive; (3) unlike good-quality colored stones, diamonds have been consistently available in both quantity and quality to permit standardization in general marketing procedures and pricing. The subsequent competition in sales has demanded a specialization that has not been required of individual colored-stone species. In other words, competitive diamond marketing is a fulltime occupation. The sources of rough, the cutting techniques and marketing are totally foreign to those of colored stones, and thus it has rarely been practical to attempt to combine the two other than at the retail sales level.

III. FACTORS THAT AFFECT THE VALUE OF GEMSTONES.

The basic factors that contribute to the value of a gemstone are BEAUTY (color, luster, perfection of cutting, etc.), DURABILITY, RARITY, DEMAND (or VOGUE), TRADITION, and PORTABILITY.

A. Beauty.

Unless a gem material possesses BEAUTY, it cannot be considered a gemstone. Thus industrial diamonds and oyster concretions, which do not have a pearly luster, have no value as gemstones and cannot be considered gems. A transparent colored stone, such as ruby, depends for its beauty on several factors; namely, the quality and depth of color, the degree of transparency, and fashioning. The beauty of an opaque stone depends mainly on color and, to a lesser extent, on fashioning. Frequently, laymen consider a material to have no significant beauty, but suspect that it is a gem mineral and therefore assume that it must be valuable. It cannot be overstressed that beauty is a prerequisite for gems. Obviously, a specimen that will not yield a beautiful cut stone cannot have any gemological value. Whenever a concretion is found in an oyster, the average person regards it as a pearl and assumes it is valuable. Actually, edible oysters are not capable of producing the nacreous layers that give the true gem pearl its color and luster; therefore, such pearl-like formations are not true pearls and have no value. If these specimens possessed any degree of beauty, it would be a different matter; however, they always have a dull, "lifeless" luster.

It is not necessary that a specimen display its maximum beauty in order to be valuable. For example, a fine-quality rough specimen of ruby with highly abraded surfaces might be very unattractive to the layman but have great potential beauty that could be revealed by proper fashioning. Thus, to qualify as a gem or gem mineral, a specimen must display beauty or possess potential beauty that can be revealed by fashioning.

B. Durability.

Another essential quality for a gem is DURABILITY. This does not mean that it should be indestructible; no such material exists. To be of use as a personal ornament, however, a stone must withstand ordinary wear well enough to retain its beauty for a reasonable period. In other words, its beauty must be of a lasting nature when given reasonable care.

One outstanding characteristic of gems is chemical and structural STABILITY. Unlike some metals that oxidize and slowly disintegrate, or some fabrics and woods that decompose, gems will withstand for centuries conditions that quickly destroy most other materials. In this sense they are exceptionally durable.

Although all of the important gems in fine quality are relatively durable when compared with other materials, there are extreme differences between various gem species; for example, jade and opal — while jade was used by ancient peoples to make tools and weapons, opals may be damaged by the heat of spotlights in a display window. Although capable of producing beautiful cut stones, some mineral species are so soft or lacking in toughness that they fail to qualify as gems. The mineral sphalerite is a good example; beautiful stones may be cut from transparent pieces, but they are so fragile that they can be damaged very easily. A similar example, the satin spar variety of gypsum, is so low in hardness that the exceedingly lovely cat's-eyes that may be cut from it are suitable only for display purposes. By definition then, gemstones are limited to the harder minerals.

C. Rarity.

The third factor contributing to the value of a gemstone is RARITY. Rarity frequently plays a very important role in determining the value of a gemstone, since, obviously, the rarer the material in great demand as a gemstone, the higher its value. Some minerals are quite common in nature but are sufficiently lovely to be in demand. The availability of average qualities results in lower mining and prices. One such gemstone is amethyst: in its finest quality it is a lovely stone indeed, yet its price to the jeweler rarely exceeds $35 per carat. This is because even fine quality material is not rare. On the other hand, even medium-quality emerald is very rare; as a result, the per carat cost of a very fine emerald may exceed $40,000 to the jeweler. Not only is the lovely green of emerald highly cherished, but its great rarity makes demand very high in relation to availability. The same holds true for fine rubies, cat's-eyes, star rubies, and star sapphires. In sizes over 2 carats, the finest qualities of ruby and emerald are more valuable per carat than colorless diamonds of comparable quality.

It is interesting to note that a gem material or potential gem material may sometimes be too rare to be in demand. Unless it is common enough to be known to consumers, too little demand exists for it to achieve sufficient status to bring high prices. Such materials include benitoite, a lovely sapphire-blue gemstone, and euclase, some varieties of which resemble the finest aquamarine.

D. Demand.

The fourth factor having a bearing on the value of gemstones is DEMAND, or VOGUE. There are times when some of the less important gemstones enjoy great demand and other times when they are in relative eclipse. In the twenties, for example, amber was highly promoted and a great demand for it was created. It soon represented the second most important gem importation into this country in terms of gross value. The fad did not last long, however, and at the present time amber is rarely seen in jewelry stores.

Interestingly enough, after the introduction of Linde synthetic star rubies and synthetic star sapphires, particularly the inexpensive qualities of natural star sapphires became exceedingly popular, and prices have been higher than they were before the introduction of the Linde product. The great amount of publicity given to Linde's development, plus their continued advertising program, has created widespread interest in star stones. Once the interest was created, it applied to all asteriated stones, both synthetic and natural. This offers proof of the unrealized potential in colored stones.

From time to time, fashion dictates the use of very large stones or numerous small stones massed in settings. Factors such as these have a bearing on value at that time.

E. Tradition.

One of the important factors affecting the demand and value of gemstones is TRADITION. It might be said that tradition, as applied to gems, is the sum of all the efforts throughout the centuries to interest and educate the public in the use of gems for ornamentation, symbolism, and as a medium of exchange. Such efforts include promotions on the part of jewelers, publicized purchases and use of gems by royalty and wealthy individuals, the symbolic use of gems in various churches and other developments in which gems play a part. All of these activities have, over a period of time, created an acknowledgment by the public of the importance of gems.

Demand follows acknowledgment and is spurred on by rarity. It is human nature to want the things we cannot have or those that are difficult to obtain, particularly if ownership gains recognition of achievement. If beauty alone were the only sought-for quality in jewelry and gems, then imitations, synthetics, and plated metals would constitute the jewelry industry; there would be little reason for anyone to go to the effort and expense of searching out the comparatively small number of natural gems available for resale to the public. On the contrary, tradition has established the importance of the principal natural gems and has associated them with genuine achievement in the church, business, family and other groups and associations. Achievement of any kind has in itself an element of rarity, and thus it is effectively symbolized by the rare. In view of this, synthetics and man-made imitations will never take the place of the natural stone, no matter how beautiful they are, other than for those who cannot pay the price of the natural. Even here they are only accepted as as substitute and, as such, are valued only at production plus handling costs.

F. **Portability.**

Another factor contributing to the importance of gems is PORTABILITY. This applies to any fine gemstone because it represents a high concentration of value in a small object, permitting the owner to transport great wealth on his person. This is what gives gemstones a universal security value, perhaps greater than any other commodity. This is the factor that has influenced royalty and many wealthy families to invest a certain amount of their funds in jewels. When everything else fails, even their government, they can take or send their gems out of the country and realize a return on them quickly. This has always been a factor of great importance, but general insecurity in recent times has given weight to the portability of gemstones as a factor in the consideration of their purchase.

IV. THE CLASSIFICATION OF GEMSTONES.

Of approximately two thousand minerals that have been identified, only about ninety have varieties that produce specimens possessing the requisite beauty and durability to be considered gemstones. Of this ninety, only about twenty are particularly important to the jeweler.

Since most gemstones are minerals, the classification method used in gemology is the same one applied by mineralogists to the various minerals, with minor adjustments. Each mineral that produces gemstones is considered a gem SPECIES. A gem species is characterized by a definite chemical composition and usually a characteristic crystal structure; therefore, each species possesses characteristic properties. Most species, however, include a number of different types of material with variations that are usually based on color, transparency or phenomena; each of these is called a VARIETY. For example, ruby and sapphire are both varieties of the gem species corundum. Ruby is the red variety and sapphire is the name applied to blue and all other colors. Since both are corundum, ruby and sapphire have the same basic chemical composition, the same crystal structure, and the same properties. They differ only in color. Rubies and sapphires also occur in "asteriated" or "star" varieties. By the same token, emerald and aquamarine are varieties of the gem species beryl. Most gem species occur in several colors. The more important gem materials and their principal varieties are listed on the accompanying table.

There is one other classification of importance in gem materials: the GROUP. A group is a number of closely related species. There are two groups of importance in the study of colored stones. The first is garnet: it is composed of a number of minerals having the same crystal structure but with variations in chemical composition. Thus the garnet group has a number of closely related species. The second is the feldspar group, which includes amazonite and moonstone as varieties of different species.

V. NAMING GEMSTONES.

Correct names applied to stones, as well as a knowledge of the properties and characterisitics that constitute the factors affecting their value, is of great importance to every person who wishes to protect both himself and his customers. A clear understanding of the above-mentioned table will help to eliminate many incorrect and deceptive terms in selling. At the time the Gemological Institute was founded, in 1931, it adopted a standard mineralogical classification as the basis for determining whether or not certain names of stones were correct in selling. In Europe the International Congress of Jewelers also adopted this basis for classification. The Federal Trade Commission in this country has used this classification to establish their rulings on colored stones. As a result, it is considered an unfair trade practice to represent, for example, red spinel as "ruby" or topaz quartz (citrine) as "topaz."

Some members of the jewelry industry have gone even further and consider the use of certain other trade terms as incorrect or deceptive. These terms, which involve names of localities, are used for describing trade grades of gems; for example, Kashmir sapphire for a certain color of sapphire that may or may not have come from Kashmir, or Burma ruby for a certain color grade of ruby that may or may not have come from Burma. Actually, since such terms are used to describe a grade or quality that originally predominated in these localitites and since it has become a common practice to apply them to all stones of similar quality, their use in this respect is not unethical. The exact location in which a gem was found usually makes no difference to the retail buyer, and in the absence of a better color-grade classification, these terms are valuable in the trade. No rulings against their use have yet been made, either by the Federal Trade Commission or by gemologists. On occasion, however, they do lead to some rather strange circumstances. For example, if a ruby actually comes from Burma but does not have the color considered to be included in the trade grade known as Burma ruby, the tendency for a colored-stone man who authenticates the Burmese origin of the stone is to charge more for it than for a similar color from another locality. A trained buyer will recognize the true grade of the stone and will buy on the basis of color and quality. Therefore, if these locality terms are used for trade grades, they should be applied only on the basis of quality and not on the basis of origin. In general, the trade-grade terms for colored stones do not lead to the type of unfair competition and misrepresentation that is so common with the trade grades applied to diamonds. For example, the references to "blue-white" and "perfect" frequently are grossly misrepresented. This does tend to deceive the public and to result in a loss of confidence.

The established firm operated by honest individuals assumed by the community to be reliable, but that is inaccurate in its use of names and qualities, has been just as responsible for the loss of confidence by the public as the occasional unscrupulous jeweler. The public expects and deserves reliable information from such an established firm. Finding the statements of two old and reliable companies to conflict, which is often the case, consumers assume that one of the firms is obviously incorrect and either hesitate to buy from either store or decide to accept the statements and merchandise of the merchant claiming lower prices. Under such conditions the public cannot be blamed for buying what is represented as the less expensive article. Correct names will not decrease the sale of gems. The use of such terms as "spinel ruby" cheats both species--the public gets the impression that rubies are less valuable than they really are, and is educated to undervalue and underappreciate a spinel. When a person to whom such a stone has been represented discovers that spinel is a different species, he feels that it has little merit or it would not have been disguised as a ruby. This is also true of "Montana", "Arizona", and "Colorado ruby" for garnets, or "smoky topaz" for the brown variety of quartz. Many of these terms were passed down through the jewelry trade from prebiblical times, when knowledge of natural science was limited and almost the only classification of gems was based on color. In those days all blue stones were known as sapphire, purple stones as amethyst, and yellow stones as topaz. Today there is a definite classification of gemstones and the use of such terms is no longer excusable.

VI. THE TERMS PRECIOUS AND SEMIPRECIOUS.

Perhaps the most obvious sign of a lack of appreciation of gemstones is the common use of the term "semiprecious." While in a famous retail store an Institute staff member noticed a couple examining with obvious interest and appreciation an attractive brooch set with green stones. He overheard the man ask about the stones in the piece. The "salesperson" answered, "Oh, those are just semiprecious stones called tourmaline." The prospective customers, who had shown keen interest in the brooch, left the store immediately without looking at other merchandise. This example points up a practice that is all too common among jewelers.

Almost every gem mineral is found and is for sale in the industry in a great variety of qualities. One quality of jade in a ten-carat size may sell for $10.00 and another quality for $10,000 or much more. A ruby may be a poor nontransparent quality and sell for $5 per carat or it may be very fine and sell for $50,000 per carat. A large opal may range in value from $50 to $50,000. Almost every variety of the transparent gem species may occur in gem quality and be properly called a precious stone from a relative price standpoint, whereas another specimen of the same variety may be almost worthless. Not every ruby is precious and not every piece of jade is semiprecious. This is one reason for calling all stones GEMSTONES and not classifying them as "precious" and "semiprecious." More important is the fact that the moment that we call stones "semiprecious", we lessen their value in the eyes of the public; the desirability and the sale of many stones of great merit is thus substantially decreased.

Few consumers desire anything but the best. They do not HAVE to have gems and jewelry, and unless they have a desire or a need for a thing, they will not buy it. Semiprecious seems second best. Therefore, the buying public, either lacking in sufficient knowledge or appreciation of these stones called "semiprecious" by their salespeople, or unable to find them for sale by a dealer who has the knowledge and appreciation that they themselves lack, buy synthetics or glass imitations in preference to the doubtful value of a "semiprecious" thing. Why should we discourage sales by continuing the use of this term? It should be abandoned totally.

VII. THE TRAINED JEWELER PROTECTS HIMSELF.

For years jewelers have risked their reputations and costly legal action by accepting for repair, resetting, or special order stone-set jewelry or loose stones either as represented by the customer or with a sight identification listed on the envelope. The average customer knows little or nothing about the jewelry he owns and, usually, has an exaggerated idea concerning the value and quality of the stones in it. Thus a jeweler who accepts a synthetic stone as natural or a flawed diamond as perfect without comment, simply because the customer claims the stone to be so, is taking a grave risk. When the customer learns later that the stone is synthetic or flawed, he will usually believe that the jeweler made a substitution while the piece was in his possession. If so, the least harm that may befall the jeweler is the loss of the customer and, in all probability, the customer's friends. With increasing frequency, legal action seems to result from such situations. The attendant publicity may ruin the firm. This condition, prevalent throughout the trade, harms all jewelers much more than they realize. Many such incidents are never brought to the jeweler's attention because the customer considers himself unable to prove his case in a court of law, so he merely spreads the story by word of mouth.

Since you have not yet learned gem identification, the means available for protecting yourself consist of recording carefully the merchandise you accept. At the present time you may protect yourself by marking job envelopes and receipts thusly: "Stone stated by customer to be ______________." This will take care of the identification problem. In other words, if the customer says that her stone is a genuine ruby, the envelope and receipt should bear this notation: "Red stone stated by Mrs. Jones to be a genuine ruby." Before accepting stones, flaws that are detected with the loupe should be pointed out to the customer. **This a vital step.** In addition, the merchandise should be described in detail: the nature of the piece, measurements of large stones, how the metal is marked, etc. If precautions of this type are not taken, the jeweler has only himself to blame for problems that arise.

A short time ago a midwestern jeweler with an established reputation accepted for mounting a large diamond. The woman who gave it to him believed the stone to be "blue-white and perfect" and to weigh over two carats. Sometime later, in an appraisal, the stone was stated to have a definite tint of yellow and to be highly flawed. The woman went to court, sued the jeweler for substitution, and won a large amount of money in the judgment. Long-time acquaintances of the jeweler knew him to be a man of unquestionable integrity; there was no doubt in the industry of his innocence. The only basis the woman had for charge her was a statement made by the layman friend from whom she had purchased the stone; yet a jury, tending to distrust jewelers, awarded the damaging judgment against the jeweler.

Many more examples similar to this one could be related. The fact is that every stone taken in for repair, remounting, or special-order work should be handled in a manner that obviates the danger of either unhappiness on the part of the customer or legal action. Actually, the precautions are simple and not at all difficult to put into practice. A mounted diamond that may have been flawless when it was sold will sometimes become chipped or cracked during wear. If the flaw is pointed out to the customer at the time the ring is accepted for repair or other work, there is no question; however, if the flaw is not pointed out prior to acceptance and is noted by the customer after the ring is returned, there is immediate suspicion that the jeweler either caused the damage or substituted stone.

The tendency for a merchant handling gemstones is to pay little attention to merchandise he knows to have a fairly low value. Often, however, customers have inflated ideas of the value of their heirlooms, and as unhappy a situation can develop over an article worth $50 as with one that is worth $1000. Thus it behooves the jeweler to be careful and to make absolutely certain that precautions are observed by all his staff members in accepting stone-set jewelry items of any kind.

For use in gem identification, handling repair work, and for several other reasons, it is important that a student understand the physical and optical properties that will be covered in following assignments. Obviously, one who wishes to appraise gemstones must be able to identify them. The procedure followed by a qualified appraiser in evaluating a gemstone is first to examine the stone carefully and ascertain its identity by means of optical and physical tests. He then considers inclusions and imperfections and their effects on both the beauty and durability of the stone. This, of course, is much more important with diamonds than with most colored stones. This can be done only by one who is familiar with the desirable as well as the undesirable characteristics of all species. For instance, a fracture in an aquamarine would have a much greater effect on its value, comparatively, than a similar fracture in a star sapphire. The reason for this is that even fine-quality star sapphires are never flawless and are rarely without some fractures, whereas to be classed as fine-quality an aquamarine must be flawless, or nearly so.

The third step in appraising the stone is to determine its size, its style and quality of cutting, and its orientation in relation to the finest potential color. It is unfortunate that the majority of colored stones on the market today fail to show fully their inherent beauty. Unless a person is familiar with the special properties of the various species, he will be unable to determine the extent to which the potential beauty of the stone has been developed. Two rubies cut from the same piece of rough and identical in every respect except for their orientation in relation to the original crystal will show such a distinct difference in color that one will be considerably less valuable than the other. Even though a ruby is properly oriented, unless it is correctly proportioned, it will not show the most attractive color. This, too, reduces its value considerably. In addition, many stones are cut in a manner that retains a great deal of weight without adding to the beauty of the stone. This means that the value per carat should not be based on the present weight of the stone but on the weight that would have been obtained with correct cutting. When a stone is held over a printed page with the table parallel to the page and observed directly from above, printing can often be seen through the stone. This is proof that the proportions are other than ideal for that gemstone.

The easier it is to "read through a stone," the poorer the proportions are. Although this may not keep a stone from being attractive, it must be remembered that the base price used by an appraiser for top quality involves a maximum display of all inherent optical characteristics. The extent to which such characteristics are displayed by a stone can only be determined when one is familiar with the potentials of the various species.

When studying the properties or characteristics of gemstones during the first few lessons, keep in mind that they are characteristics that you must understand, just as you learned early in life to understand the characteristics of people. You found that some were honest and others not, that some were strong and others weak, and that those whom you thought beautiful had certain characteristics that made them so. You learned to appreciate your friends because of certain of these qualities that you admired. Gemstones have similar characteristics. Your first job is to learn the admirable qualities of each stone and then to instill a desire in your acquaintances and customers to possess them.

VIII. REPRODUCTION OF GEMS.

The technological advancement which developed the science of gemology also made possible the development of synthetic stones, which are not imitations but REPRODUCTIONS, having the same chemical constituents and the same physical and optical properties as their natural counterparts. It requires the trained eye of the expert, assisted by his instruments, to detect the difference. This and the more simple detection of imitation stones are explained in this course. We may expect constantly increasing quantities of such material to appear on the market, making it necessary to test all stones purchased. Thus one more reason for knowing gemstones is to be able to distinguish between the synthetic, the natural, and the imitation.

IX. WHAT IS GEMOLOGY?

The word gemology is derived from the Latin word "gemma," meaning gem, and the Greek "logos," meaning discourse. Obviously, considering the derivation of the word, gemology could be spelled with one or two "m's." In this country it is spelled with one "m"; in Britain with two.

Gemology is a distinct science. In a sense, it is a branch of mineralogy, but since mineralogy is concerned with many other subjects and does not consider many of the matters taken up in gemology, gemology must be considered a distinct science. Gemology is not only concerned with the study of gem materials and the correct terminology for those materials, but also with gemological testing methods, cutting and polishing, synthetically manufactured gems, precious metals and their alloys, and appraising procedures. Moreover, it deals with substances such as pearls, which are not considered in mineralogy. Those who approach the study of gemology lightly are surprised at its breadth. As in any other science, no man ever becomes its complete master.

X. BACKGROUND OF GEMOLOGY IN NORTH AMERICA.

Gemology was first taught as a senior course for geology and mineralogy majors at the Colorado School of Mines from 1909 to 1913, and was terminated only when the professor, Dr. G. Montague Butler, left the school. This course was very popular. In 1916, professor Edward H. Kraus, of the University of Michigan, introduced a one-semester course entitled "Gems & Gem Materials," which has been offered ever since. Since 1920 a short evening course in gemology has been offered at Columbia University for academic credit, and courses of a similar nature have been offered in other universities from time to time.

The correspondence courses of the Gemological Institute of America are the outgrowth of classes conducted in 1930 and 1931 at the University of Southern California by Robert M. Shipley. His preparation for these courses was sixteen years in the American retail jewelry business, followed by two years of concentrated study at European educational institutions, museums and gem-trade centers. Upon graduation from the Gemmological Association of Great Britain, Mr. Shipley returned to the United States and was asked to conduct classes at the University of Southern California. Subsequently, he was asked by interested jewelers to expand this training. For this purpose, the Gemological Institute of America was founded.

In the beginning, the courses were short and given verbally. Later the material was recompiled in correspondence form and expanded gradually to its present length. During subsequent years, many people were added to the staff whose varied backgrounds were essential to presenting the broadest course of its kind in the world.

The establishment of the Gemological Institute marked the introduction of gemology into the business life of the United States and Canada. Since then the public has become more and more familiar with this new science through the media of public and private schools, libraries, newspapers, educational window displays, and lectures by jeweler-gemologists.

In 1943 the Institute was presented to the jewelry industry by Mr. & Mrs. Robert M. Shipley, with Mr. Shipley remaining active as Executive Director until his retirement in March of 1952. Upon Shipley's retirement, Richard T. Liddicoat, Jr., who has a master's degree in mineralogy, became GIA's director. In 1970 Mr. Liddicoat was named president of the Institute; later he also became president of GIA's subsidiaries, GEM Instruments Corporation, and GIA Gem Trade Laboratory, Inc. Under Liddicoat's guidance and leadership, the GIA has grown immensely in size and scope. When he took over in 1952, there were only about twenty employees. In 1980, there were over five-hundred employees total in the Institute and its subsidiaries. From the original correspondence courses, the scope of the Institute's educational activities has expanded to include one week classes in gem identification, diamond appraisal and diamond setting in cities throughout the world, full-time resident programs in gemology, jewelry arts, and jewelry store management.

GIA is a nonprofit corporation, the policies of which are established and controlled by a Board of Governors who are elected annually by jewelry firms in the United States and Canada known as Sustaining Members. Its income is derived from course tuition, testing fees, gem-testing and diamond- grading instruments it designs and manufactures, and small annual dues from the Sustaining Member firms. The Institute's primary purpose is to provide jewelers with reliable and authoritative information and instruction in gem identification, grading and appraisal. It maintains laboratory facilities for the grading and identification of gemstones for both jewelers and the public.

COMMONLY USED VARIETY NAMES FOR THE IMPORTANT GEM SPECIES

The following table contains a list of the more commonly used variety names for the important gem species. In the absence of a specific variety name, a stone is simply called by its species name preceeded by a color prefix; e.g., red spinel, red tourmaline. The numerous trade names frequently encountered for colors not included under the established variety names (e.g., "gooseberry garnet," "spinach jade") are not shown on the table. In addition to the natural gem materials listed, a more complete classification would include synthetic corundum, synthetic spinel, synthetic emerald, synthetic rutile, strontium titanate, cultured pearl, glass and plastics.

SPECIES	VARIETIES
Diamond	
Corundum	Ruby, sapphire, star ruby, star sapphire.
Chrysoberyl	Cat's-eye, alexandrite.
Beryl	Emerald, aquamarine, morganite.
Spinel	
Topaz	
Zircon	
Tourmaline	
Garnet Group	
Almandite	Almandite or almandine.
Rhodolite	
Pyrope	
Grossularite	Hessonite.
Spessartite	
Andradite	Demantoid.
Quartz	
Crystalline	Rock crystal, amethyst, citrine (or topaz-quartz), cairngorm (or smoky quartz), rose quartz, aventurine quartz, tiger's-eye, quartz cat's-eye, rutiliated quartz.
Cryptocrystalline (Chalcedony)	Chrysoprase, carnelian, sard, bloodstone, agate, onyx, jasper, agatized or petrified wood.
Peridot	Chrysolite.
Jadeite (Jade)	
Nephrite (Jade)	
Spodumene	Kunzite.
Feldspar Group	
Microcline	Amazonite.
Labradorite	
Orthoclase	Adularia or moonstone.
Oligoclase	Sunstone or aventurine feldspar.
Turquoise	
Lapis-Lazuli	
Opal	Black opal, white opal, fire opal.
Hematite	
Organic Materials	
Pearl	Salt-water pearl, fresh-water pearl.
Coral	
Amber	
Jet	